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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/718,961

11/21/2003

Clifford C. Bampton

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INGRASSIA FISHER & LORENZ, P.C.
7150 E. CAMELBACK, STE. 325
SCOTTSDALE, AZ 85251

EXAMINER

MCNELIS, KATHLEEN A

ART UNIT

PAPER NUMBER

1742

MAIL DATE

DELIVERY MODE

04/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/718,961

Applicant(s)

BAMPTON, CLIFFORD C.

Examiner

Kathleen A. McNelis

Art Unit

1742

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 26 March 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: 1-7, 9-15, 17-20 and 24.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____.
13. ☐ Other: _____.

Continuation of 11. does NOT place the application in condition for allowance because: Arguments have been considered but are not persuasive.

Arguments are summarized as follows:

1. Aeromet does not teach spreading a layer onto a substrate because the base of Aeromet is molten then directing a laser only onto selected areas of the layer.
2. Regarding claim 1, applicant requests phase diagram supporting examiner's contention that the Ti-6Al-4V alloy meets the claimed limitations that the base metal and alloying metal can be annealed at a temperature between the melting of the two without reacting.
3. Regarding claim 1, Aeromet does not teach that the base metal is bound, but rather that it forms an alloy meeting compositional and material properties for commercially pure Ti-6Al-4V (Aeromet, p. 25).
4. Regarding claim 9, Aeromet does not teach that the energy beam is selective focused onto the layer of powder and that the alloying metal is then re-solidified to bind the base metal.
5. Aeromet does not teach quantitatively adding the Ti in a manner where either Al or V melt and not react with Ti.
6. Zhuang, Blue and Ryan do not compensate for the deficiencies of Aeromet.
7. Blue and Ryan do not teach that the Ti-15Ni-15Cu alloy is only 10-30% of the blend.

Responses are as follows:

1. The instant claims do not limit the physical state of the substrate during the spreading step. Abbott et al. (Aeromet) teaches depositing material in the form of a powder to form layers as discussed on p. 24 of Aeromet publication and p. 4 of 07/25/2005 Office action. Further, the claims do not recite that the laser is directed only onto selected areas of the layer or limit these areas, but rather recites that the energy beam is directed "onto selected areas", therefore any area could be selected, e.g. the entire surface.
2. The composition of Ti-6Al-4V is not 1 part Ti, 6 parts Al, 4 parts V (moles) as stated in the arguments. The composition is 6 wt% Al, 4 wt% V, balance Ti (see ASM Metals Reference Book, p. 505 and Physical Metallurgy Principles p. 714). A binary phase diagram for Ti-Al is provided (see Physical Metallurgy Principles, p. 710). At 6wt% Al, a binary Ti-Al alloy can be annealed in regions of solid solution (e.g. the β -Ti) region at temperatures less than the melting of Ti (i.e. about 1670 °C) and greater than the melting of Al (i.e. about 660°C). The Ti-6Al-4V can also be heat treated in the β -Ti region (see pp. 715-718 of Physical Metallurgy Principles).
3. Examiner contends that forming an alloy of Ti-6Al-4V is evidence that the base metal (i.e. Ti) is bound to the alloying metal (i.e. Al).
4. Selective focusing is not recited in claim 9, but rather melting selected areas by directing the beam onto selected areas. See above response to No. 1 regarding "onto selected areas" language. Further, Aeromet discloses melting the composition to form layers, the depositing additional layers, therefore the requirement to melt, solidify and bind the layers is met (see response to no. 3 regarding binding). Further, Aeromet discloses an example of using the system to repair moulds and dies by building up the surfaces followed by final machining (p. 26).
5. Since Aeromet specifies the composition Ti-6Al-4V (i.e. 6 wt% Al, 4 wt% V, balance Ti), the elements are quantitatively included. See response to no. 2 above regarding the melting of 6% Al as either a binary Ti-Al alloy or in Ti-6Al-4V. Further, claims requires dissolving
6. Zhuang or Blue or Ryan are used as secondary references as set forth in the 07/25/2006 Office action (pp. 5-10) and maintained in the 01/25/2007 Office action.
7. Instant claim 20 recites a powder blend comprising "a base metal of Ti or alloy thereof" and "an alloying metal" having a second melting temperature lower than the first alloy, where the alloying metal is a Ti-15Cu-15Ni alloy and is 10 to 30% of the blend. The only limitation for the base metal is that it contain Ti and have a higher melting temperature than the Ti-Cu-Ni alloy at about 15% Ni and about 15% Cu balance Ti. The first metal can therefore be a Ti-Cu-Ni alloy with composition close to that of the second Ti-15Cu-15Ni alloy.



ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700